



**IMA 2010
BUDAPEST**

BONDS AND BRIDGES

**THE 20TH GENERAL MEETING OF THE
INTERNATIONAL MINERALOGICAL ASSOCIATION**

**21-27 August 2010
Budapest, Hungary**



IMA2010 CONFERENCE NEWS

The daily newspaper of the 20th General Meeting of the International Mineralogical Association

WEDNESDAY

Today's Elements 5 talk

Mihály Pósfai: Biomineral attractions: magnets in organisms

Although many organisms contain ferrimagnetic nanocrystals, the biological functions of these crystals are known only in some cases. Studying the magnetic properties of biogenic magnets can help us understand the mechanisms of magnetic sensing by organisms.

Advanced transmission electron microscopy techniques, including off-axis electron holography were used to study the structural, magnetic and chemical properties of magnetic nanocrystals inside magnetotactic bacteria. Based on these results, an experimental "magnetic-state phase diagram" was constructed, from which further conclusions can be drawn about the orientation of cells in magnetic fields.

Biogenic magnets exhibit fascinating combinations of magnetic properties and biological functions. In the talk by Mihály Pósfai (University of Pannonia, Hungary) the further use of the results of recent studies in solving the key challenges in this field will be also shown.



From 12.20 to 13.00

Geochemistry and Petrology

Related programme in the Northern Building:

- 8.30-10.30: Pegmatites: from gemstones to cell phones (N-E hall)
- 11.00-12.20; 16.50-18.30: Alkaline rocks / kimberlites / carbonatites (N-E hall)
- 13.00-13.50: Plenary talk by Olgeir Sigmarsson (Plenary hall)

Related programme in the Southern Building:

- 16.50-18.30: Geology of clays (S-C hall)

Theme of the day

Today's plenary talk

Jonathan Lloyd: The mineral-microbe interface and its defining role in controlling contaminant mobility in the subsurface

Specialist bacteria and archaea are able to affect on redox transformation processes of minerals, which can even control contaminant mobility through innovative biotechnological techniques.

Recent advances of the joint sciences of mineralogy and microbiology offer a wide range of applications, including the bioremediation of metal contaminated land and water, the oxidation of xenobiotics under anaerobic conditions, metal recovery in combination with the formation of novel functional bionanominerals, and even the generation of electricity from anoxic sediments.

Using the example of the Fe-bearing minerals, Jonathan Lloyd (University of Manchester, UK) shows the fields of application, the possible dangers, and gives an insight into the modern technologies, which open new research areas.



From 16.00 to 16.50

Today's plenary talk

Olgeir Sigmarsson: Mineralogical and glass compositional variations during the 2010 eruption of Eyjafjallajökull, Iceland

The explosive eruption of the Eyjafjallajökull was on the front-page of newspapers from all over the world, but only scientists -who were interested in the topic- knew, that before this, the volcano had had a basalt eruption from a fissure, and later from a single crater as well.

Composition of the different volcanic materials produced by the Eyjafjallajökull, and their changes were studied, and compared to older volcanic ash. According to the results, which will be displayed in today's plenary talk of Olgeir Sigmarsson (CNRS, France and University of Iceland), flank eruption (in March 2010) produced primitive basalt affected by degassing-related crystallization. Later trachy-andesitic tephra producing explosive



eruption (began on 14. April 2010) was formed by dynamic magma mixing of mantle-derived basalt with older silicic intrusion remobilized by the crystallizing primitive basalt.

From 13.00 to 13.50



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G. R. Rossman

Mineral spectroscopy: from gamma rays to microwaves

Yesterday's *Theme of the day* was **Methods & Applications**. Mineral spectroscopy, which has been a thriving science for the past 50 years, was in the focus of a session in the Northern Building.

Spectroscopic methods provide information about the local structure of minerals and can also be applied to poorly crystalline matter, nanomaterials, melts, and glasses.

Different techniques were mentioned, like gamma ray spectroscopy, high intensity X-ray, vibrational spectroscopy, ATR, infrared spectroscopy, Raman spectroscopy, thermal emission infrared spectroscopy, NMR spectroscopy, EPR.

Out of these the Raman spectroscopy has become highly convenient and readily available. This technique has become an extraordinarily useful tool for phase identification of minerals even down to sub-micrometer sizes.

As a conclusion, he mentioned, that technologies of the future are the portable ones.



Lecture from yesterday

Yesterday's Elements 5 talk

The Elements 5 lecturer of Tuesday was Nigel Kelly, expert of zircon research, who showed us the hidden opportunities that lie in this „tiny but timely” mineral.

He referred to his lecture as “traditional material” compared to the earlier Elements5 talks, and started with the most important general information about zircons. However he shortly pointed out that zircons can be found not only in ordinary places, but also e.g. in hydrothermal environments or mid-oceanic gabbros. At the end he presented amazing modern methods that can help us use zircon and the information in it.



„Zircons will continue to surprise us... we just have to look.”

“I have been working with zircons in the last eighteen years, I am more like a zirconologist separating them every day.” (Mauro Geraldès)



H. Stanjek

Mineral reactions, development of porosity and their implications for CCS

Yesterday's *Theme of the day* was not only **Methods & Applications** (see above), but also **Applied Mineralogy**. Professor Stanjek is working on the latter topic.

An interesting talk about experiments forecasting the safety of reservoirs by examining long-term storage of CO₂ was held by Professor Stanjek. Many gas and oil reservoirs contain innate CO₂ that is why researchers began to make detailed studies on reactions caused by CO₂ inside the formations. It was found that not only pressure and temperature, but also the chemistry of the pore fluid can change. Different mineral reactions are caused by these processes (e.g. anhydrite conversion into calcite), which results in changing of the volume and finally in changing of the porosity and permeability.

During the talk, (case) studies and results of laboratory experiments were shown. As a final conclusion, the speaker has pointed out that these results are of real practical importance.

Lecture from yesterday

Yesterday's plenary talk

The audience had waited with great anticipation for Tuesday's plenary lecture about the origin of diamonds in William Griffin's presentation.

He introduced a new approach on the interpretation of the subcontinental lithospheric mantle processes and their connections with diamond formation. He concluded with a very interesting discovery: as kimberlite pipes “cluster” around margins of high velocity domains, archaean cratons are much more widespread laterally and vertically than we had thought before.

“There are some elements on Earth which are just beautiful.”



“The research of metasomatic processes in the proposed model can be quite significant in diamond exploration but as the last slide of the lecture said, that certain miracle (connecting kimberlites and diamond formation -editor's note) is still not very clear.” (Federica Zaccarini)



Congress dinner - Official communication

! If you take part at the Congress dinner, please be so kind to bring the yellow entry ticket with you, because it will be checked at the entrance. Thank you for your attention.



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Tuesday - 24.08.2010 at IMA2010 - in pictures

Lectures and posters



Music at IMA2010 - While during the breaks professionals entertain the IMA2010 participants, on Monday evening something special happened; IMA2010 Choir was founded. You can still join them!



Leisure and pleasure at IMA2010

Mini duathlon was held on Tuesday, 7 participants joined the race. Professor's category winner was József Pálffy (Hungary), under 30 's category winner was Stefan Soellradl (Austria, right).



Lunch break



Departing to a field trip



Visitors in the Historical Mineral Hall



EMU poster prizes

Two poster prizes (a diploma and two volumes of the EMU Notes in Mineralogy) will be offered by the European Mineralogical Union to students or young researchers from European countries. They will be awarded at the end of the EMU Medallist's talk on Friday 27, presumably at 16.45.



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Social, music and sport events (Wednesday, 25 August)

Leisure and pleasure at IMA2010

- 10.30-11.00: Anna Molnár and Csaba Tőri (classical music in the Southern Building)
- 13.15-13.45: Clarinet quintet (classical music in the Northern Building)
- 13.00-19.00: IMA2010 Basketball Shooting Challenge (at the northern entrance of the Northern Building)
- 13.00-20.00: IMA2010 Table Tennis (in the Southern Building)
- 14.00-15.00: IMA2010 Conference Choir, rehearsal (N-E hall)
- 14.45-15.45: Eszter Béres - Gábor Szalay Duo (jazz music in the Northern and in the Southern Buildings)

Information about the sport events, and registration for all of them will be at the Sport Help Desk

Thursday, 26th August: GeoRock concert in the Eötvös Collegium (Ménesi str. 11-13).

NEW!

Saturday, 28th August:
rowing on river Danube
(dragon boat and/or fix
rowing boat).



IMA2010 Soccer games 1

Leisure and pleasure at IMA2010



Three games were held on Monday evening among the teams *The Intercontinental Bonds*, *Kushiroite* and *LRG*. The best scorers were Atsushi Kyono (3), Péter Völgyesi (2), István Kovács (2), Jose Gadinho (2) and László Magyar (2).

How is hammer written in...

Voices of the IMA2010

 German: Hammer	Arabic: مطرقة
 Croatian: Čekić	Finnish: vasara
 Czech: kladivo	Greek: σφύρα
 Hungarian: kalapács	Hindi: hataudi
 Polish: młotek	Icelandic: hamar
 Romanian: ciocan	Italian: martello
 Slovakian: kladivo	Japanese: かなづち (kanadzuchi)
 Slovenian: kladivo	Portuguese: martelo
 Serbian: чекић	Russian: молоток
 Bulgarian: чук	Spanish: martillo

Daily news

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Official communications

Chair persons amendment

In session EG52 (Platinum group minerals in the new millenium), Prof. Aberra Mogessie is also a chair and he did a lot for the success of this particular session and regrettably his name did not appear in the printed programme.

Changes in the oral programme

Please note that Grobéty's talk (*Polysomatic defects in astrophyllite*) in session MC102 (Wednesday, 25th of August, from 9:10) is cancelled. This talk is replaced by Pignatelli & Nespolo (*Structural refinement and OD character of a 4-layer ferrophlogopite*).

Please note that unlike in the printed programme, Prof. Fabrizio Nestola's talk in DE41 will be today, from 12.00-12.20 in room N-C.

Minerals-related stamps and post marks from the collection of Kálmán Miskey

IMA Art exhibition

Kálmán Miskey had the most abundant collection on mining-, mineralogy- and metallurgy-related stamps and postmarks in Hungary.

Between 1972 and 1998 he was the only Hungarian member in that special chapter of the International Philatelic Society. His complete collection is presently stored in the Selmec Museum Library at the University of Miskolc, but selected parts of his collection are displayed in the Historical Mineral Hall during IMA2010.



There is something new under the earth - Minerals discovered in the Carpathian region

Nearly 300, among them many unique, rarely exhibited mineral specimens are put on show at the Hungarian Natural History Museum in the new temporary exhibition opened on the occasion of IMA2010.

You can also learn the story behind the species from the book of Gábor Papp "History of minerals, rocks and fossil resins discovered in the Carpathian Region" (on sale at the EMU-EJM booth).

The museum (Budapest VIII., Ludovika tér 2-6) is number 54 on the free Budapest city map available at the info desk. It is open every day 10:00-18:00, except for Tuesday, free for conference badge holders.

